

C Unit 13 C_{PRIVATE}

Project Management

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PROJECT MANAGEMENT

13.1 INTRODUCTION

The primary stages of project management skills include: Project Planning, Project Management, Managing Project Specifics, and Communication.

Projects vary in scope, duration and complexity, but often share a number of common characteristics:

- ° Projects have specific information needs.
- ° Objectives of a project must be accomplished within specified limits of time, dollars and other resources.
- ° Projects have a definite end point at which they can be said to be complete and objectives met.
- ° Projects plans need to be flexible and must be designed to meet unique requirements of the situation and dynamic enough to meet unpredictable events and outcomes.
- ° Projects are often complex and their results are not always obvious.
- ° Projects require problem structuring, identification of appropriate information needs and skillful interpretation of results.
- ° Projects must take into account multiple perspectives of the problem.

13.2 PROJECT PLANNING

The planning functions of a project can be broken down into a number of subcategories that often include: 1) determining project objectives, 2) formulating plans that meet the stated objectives, 3) establishing standards of performance and practice.

13.2.1 Determining Project Objectives

Clear project objectives must be established prior to formulating specific project works plans of scope of work. If the purpose of the project is to determine if a release has occurred from a petroleum containing underground storage tank (Figure 1) then clear cut objectives can be formulated. For instance: 1) how many samples will need to be taken, 2) from what locations, 3) what laboratory analytical

procedures will need to be conducted and at what detection limits, 4) if the results indicate a release has occurred will groundwater monitoring wells need to be installed, 5) what requirements and permits are necessary for well groundwater well installation, 6) what is the proper installation procedures, and so on ... If these project objectives are not clearly determined prior to project initiation, the consultant can waste the clients financial resources and at the same time end up in an embarrassing situation.

13.2.2 Formulating Plans That Meet the Stated Objectives

Most project managers understand the importance of project organization and management. Often the most difficult part of planning and managing a project is coordinating the various contractors and logistics of the various components of the overall project. The typical subcomponents of a project can be broken down into the following tasks:

- ° Determining the total amount of work to be done.
- ° Dividing the work into manageable components.
- ° Selecting "qualified" individuals to fill the designated positions.
- ° Setting the methods and procedures for getting the work completed.
- ° Communicating the organizing process.
- ° Monitoring the progress.

13.2.3 Establishing Standards of Performance and Practice

There are two kinds of standards - those that are standards of the profession (i.e., engineering standards, etc) and those that represent levels of excellence in performance or conduct.

The Standards of Practice for the Certified Environmental Manager (CEM) requires that each holder of a certificate issued by the division:

- ° Shall provide services which are ethical, meet the current standards of the profession and which comply with federal, state and local regulations concerning hazardous substances or underground storage tanks.
- ° Is responsible for the work of other persons he employees or supervises.

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- ° Shall have a copy of his certificate at the location where he is supervising work. Upon request of the division, client or potential client, a holder of a certificate shall present his certificate for inspection.
- ° Shall make a written report to the facility owner or operator, within 24 hours, upon the discovery of a release of a hazardous substance or the existence of an unregistered underground storage tank and advise that facility owner or operator of any applicable reporting requirements.
- ° Shall report to the division and to the division of emergency management of the department of the military, the discovery of a release of a hazardous substance which presents an imminent and substantial hazard to human health, public safety or the environment as soon as possible after he has knowledge of a release.
- ° Shall secure the services of a qualified person to perform any part of his job which requires a level of service or skill which he is not qualified to provide.
- ° Shall make complete prior disclosures to his clients or potential clients of potential conflicts of interest or other circumstances which could influence his judgment or the quality of the services he provides.
- ° Shall not falsify or misrepresent his education or experience, the degree of responsibility for prior assignments or the complexity or prior employment or business, relevant factors concerning employers, employees, associates or joint ventures or past accomplishments.
- ° Shall maintain a written record of each project requiring certification for 3 years after the project is completed. The division may inspect those records during normal business hours and will establish requirements concerning the information which must be included in the records.

Certification may be suspended, revoked or denied for renewal if the division determines that the certificate holder had not performed in accordance with these standards.

13.3 PROJECT MANAGEMENT

While smaller projects are often handled by oral/memo assignments of tasks, larger projects require detailed written plans or scope of work (SOW) that guides the course of the project. Such a written plan or SOW helps the client:

- ° See if information produced will yield useful information at an efficient and affordable cost.
- ° Plan as a basis for monitoring/controlling planned activities and help to ensure the course of action produces what is/was promised.

The written work plans or SOW helps the consultant in:

- ° Thinking through the problem.
- ° Identifying tasks and assures the project produces the necessary information that meets not only the clients needs but also those of the regulatory agency.
- ° Designing projects that realistically allocate the needed resources to accomplished the tasks with available resources.
- ° Providing a specific plan of action that focuses their activities once the proposed work project is approved and initiated.

Planning and managing projects typically involves four (4) "key" tasks: 1) scheduling tasks, 2) developing personnel plans, 3) producing a budget, and 4) approval of the project plans.

13.3.1 Scheduling Tasks

This component categorizes specific tasks and orders them in a sequence of planned activities, often in diagrams format. Figure 1 diagrams the critical path method for evaluation of a leaky underground storage tank for initial abatement, site characterization and corrective action plans. Figure 1 was developed by Steffen Robertson & Kirsten (SRK) of Nevada specifically for the CEM training course.

13.3.2 Developing a Personnel Plan

The scope of a project, with it's complexity and administrative tasks, determine personnel requirements. This staffing plan accomplish three objectives: 1) Defines responsibilities of personnel, 2) identifies administrative organization, and 3) identifies staff time required for project tasks.

13.3.3 Producing a Budget Plan

This documents the amount and type of resources, both personnel and

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non-personnel (i.e., equipment and supplies, laboratory analytical services, per diem costs, etc) needed to execute the work plan.

13.3.4 Approval of Project Plans

This builds commitment by those making decisions or funding the project. In order to get approval, consultant or project manager may need to:

- ° Modify plan formats, making it more understandable and useful for the client and/or regulator.

1 **Figure 1** Flow chart
 critical path method
 leaky underground storage tank
 initial abatement, site characterization and corrective action

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- • Apply more, less or different resources to change completion dates, or objectives of key tasks.
- • Change the scope of the project to accelerate results and to conserve financial resources.
- • Take a position that the plan, as presented, is necessary for the successful completion of the stated objectives.

13.4 MANAGING PROJECT SPECIFICS

Effective management means skillfully fulfilling leadership tasks which include: 1) developing project teams, 2) managing project conflicts, 3) monitoring resource expenditures, and 4) maintaining contact with clients.

13.4.1 Developing Project Teams

Projects typically fail based on the skills of the project manager. These skills include those necessary to:

- • Integrate the projects technical specialists and experts which may be from diverse professional backgrounds.
- • Cope with constant change in the work environment.
- • Understand the subtle interplay of organizational and behavioral dynamics.
- • Possess a high degree of leadership in often relatively unstructured environments.

Project managers should be given flexibility in choosing teams so that it is the most motivated and technically qualified. A prime responsibility of the manager must be to develop a work climate conducive to effective team functioning. An important step here is to have staff of sufficient size, qualifications and personalities to minimize tensions and frustration. Further it is essential that a project manager spell out clearly and succinctly what work product is expected of each team member or subcontractor working on the project.

13.4.2 Managing Team Conflict

Conflicts occur during projects for a variety of reasons. Some can be avoided (such as personality conflicts) by proper selection of project team members. However, other conflicts and setbacks may occur due to inclement weather, equipment failures, or unexpected findings. Some of the major project conflicts and setbacks include, but are not limited to:

- Scheduling - disagreement over timing/sequencing of

- tasks.
- ° Priorities - Differing views over issues/outcomes most important to complete the project.
- ° Human resources - conflict over the initial staffing with other projects.
- ° Technical concerns - Disagreement over performance specs, technical means to achieve performance objectives.
- ° Administrative procedures - dissension over operational issues
- ° Cost - conflict over resources allocated for project activities.

13.4.3 Monitoring Resource Expenditures

A budget must be used as a guide or a financial plan of action for achieving project objectives and goals. However, these financial controls need not be unduly restrictive, especially if they are sensible, applied with discretion and explained to all team staff and the client.

13.4.4 Maintaining Contact with Clients

The quality of the relationship between client, project manager and the project team will have an effect on project outcome. Clients must be afforded opportunities to express ideas and concerns. Periodic progress reports on project status keeps communication open. Clients should be given opportunities to review drafts to identify and correct factual errors, omissions, misinterpretations, misleading statements, unworkable alternatives, and recommendations. Maintaining this communication keeps clients interested in the process and therefore committed to the use of the proposed outcome.

13.5 COMMUNICATIONS

Written reports constitute the major communication linkages between consultants, clients and the regulatory agency. Final reports become the sole/source document for reference of what was done, how it was done, and what the results were. There are two (2) major concerns in final reports: report format and report writing.

13.5.1 Report Format

Final reports provide the "road maps" for readers, guiding them

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through, often times complex issues. An effective format allows a reader to know in a logical understandable fashion, the content of the report and how the content will be presented. Although there are variations, most formats contain the following information:

- ° Title Page - Title of report, date of submission, client name and CEM Project Manager.
- ° Executive Summary - Includes statement of the issues, how study was conducted, summary of conclusions, and recommendations.
- ° Table of Contents, Charts and Figures - Listing major headings allows the reader to go directly to relevant sections in the report. It also provides order and flow of topics.
- ° Introduction, Background and Objectives - Discusses purpose, information objectives, background and scope of the study. The Scope of Work or Work Plan presents technical methods and procedures used to collect and analyze data, and informs the readers of the limitations of the procedures used. Large studies often have separated chapters detailing technical methods and procedures.
- ° Findings of Study - Discussion of findings is often the longest section of report. It should be an organized presentation of findings, giving the readers a clear sense of the facts and findings of the investigation. The use of figures can often clarify visually the findings and results and help justify the conclusions and recommendations.
- ° Conclusions and Recommendations - The findings (above) provide the basis for conclusions, and the conclusions provide the basis for alternatives and recommendations.
- ° Appendices - Include detailed tables, fieldwork procedures, supporting documents, chain-of-custody forms, laboratory analytical data sheets, and all quality assurance and quality control (QA/QC) field and laboratory documentation.

Whatever format is used, effective organization presents material in manageable chunks that are carefully grouped, logically ordered, clearly marked and labeled as to their importance. The reader can quickly grasp the main points and know where the report is heading.

13.5.2 Report Writing

Good report writing makes for easy reading. Some guidelines for good report writing includes:

- ° Write to the Appropriate Audience - Tailor the report to the needs of the client and regulatory agency. Put yourself in the place of the client and/or regulatory agency and consider their questions, concerns, needs and backgrounds. Orient report contents to problems, constantly linking discussions to key issues and decisions confronting the client and the regulatory agency.
- ° Use Direct, non-technical Language - Keep writing plain, brief, to the point and understandable to the nonexpert and expert alike.
- ° Strive for Clarity of Expression - Rule of clearness is not that reader can understand, but rather that reader cannot possibly misunderstand. Clarity is enhanced through good organization of ideas, using words precisely and providing examples. Have others review in order to improve clarity.
- ° Make Writing Coherent - Link sentences and paragraphs to previous ones.
- ° Ensure that Tables and Graphics are Readable - Use simple visual displays to communicate major findings and use descriptive titles.
- ° Keep Writing Interesting - Create sentences that are on target, accurate and vivid in their description. Use active verbs and mix short sentences with long ones. Include references to the regulations and specific regulatory action levels, citations and examples.

13.5.3 Oral Presentations

The principles of effective writing also apply to verbal presentations. Adapt the presentation to the anticipated audience (client or regulator). Be direct, to the point, and brief, and suggest concrete action steps implied by findings. Punctuate the presentation with reference to visual aids which maintain audience interest and direct the flow of discussion in presentations. Keep an even temper, even when faced with unfair opposition. If making a presentation for a client, it is always wise to brief the client informally before the meeting.

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13.5.4 Bringing Projects to Completion

Unless recommendations in project reports are simple and noncontroversial, client may not be able to understand or assess the implications of the recommendations and act on them, in a single meeting. Several subsequent working sessions may be necessary. Further responsibilities of the project manager includes:

- ° Establish personnel phaseout schedules.
- ° Preparing personnel evaluation of team members.
- ° Analyzing overall project performance with regard to financial data, schedules and technical efforts.
- ° Completing and securing project files.